TQ7 Assessment Gathering

4 channel Assessment Gathering
with *BioExplorer*, Q-wiz and Electro-Cap

SELECT SETTINGS

Open Design

Open BioExplorer, click Design | Open and select the **TQ7 Assess Pro Gather 4C** design

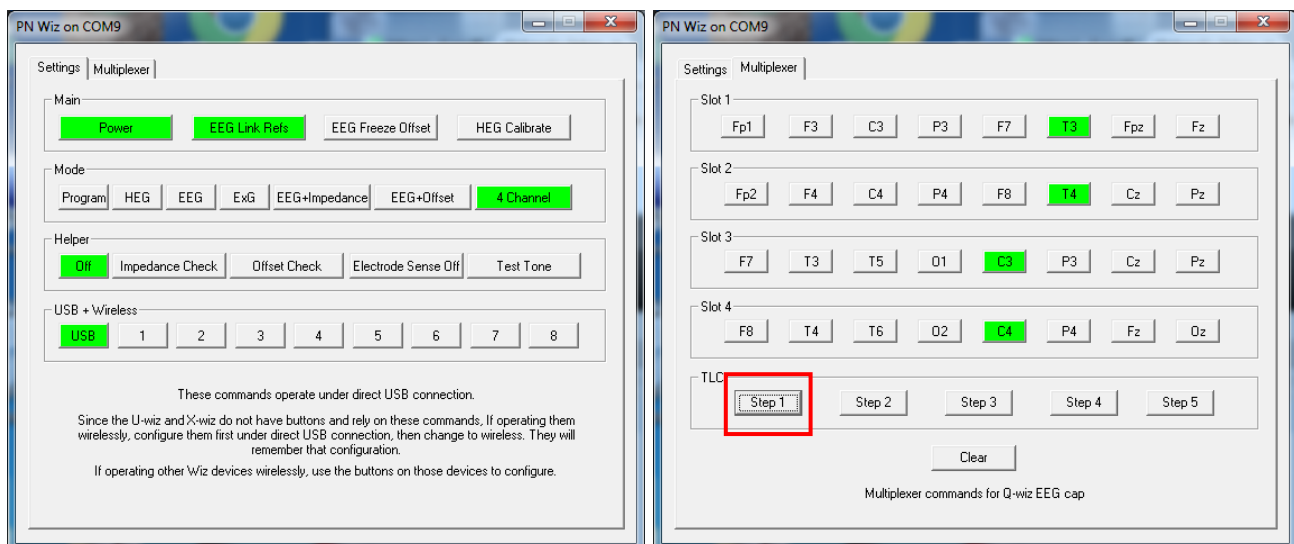### Configure channels

Click on the PN Wiz window to select settings.

Click buttons EEG Link Refs and 4 Channel to select linked references and Mode 4. The Mode in current use is indicated on the Q-wiz by the number of blinks of the green LED.

Select EEG sites

In the "Multiplexer" tab, select Step 1 for the first assessment site-set (T3 T4 C3 C4). This will begin "cap mode."

PREPARE SITES

Place the cap and prep all sites you will include in the assessment and the **ground** and the **ear clips**. The ground on the Electro-Cap is at AFz and must ALWAYS be prepared with Electro-Gel. Plug the Electro-Cap cable into the 25-pin input on the front of the unit. The green LED will be lit/blinking when the connections are good; high impedances will cause the LED to turn off.

EXPLAIN PROCESS TO THE CLIENT

- First minute of recording will be relaxed, still, with eyes closed
- Second minute of recording will be relaxed, eyes open and still
- Third minute of recording will be relaxed performance of a task with eyes open. Explain that this is not a test of the client's performance but a way of seeing how the brain responds to the challenge.

Before recording each area, explain the task and verify the client understands what to do.

Verify that the client is relaxed, sitting straight with both feet on the floor with eyes closed or open as appropriate.

4-Channel Tasks

- **T3/T4 and C3/C4**—Client **listens for detail**. Read or tell a story or article with detailed information in it while the client listens. Tell the client you may ask questions after the recording. Ask open-ended questions first (e.g. "what was the paragraph about?") and move to greater detail.
- **F3/F4 and P3/P4**—**Digit-span working memory** test. For the first 30-40 seconds read a series of digits (0-9) one second apart (start with 5 digits) and ask the client to repeat them. If client can do 5, try 6, then 7. You may choose to pause after 30-40 seconds to do Reverse Digit Span: Explain the task (listen to the numbers and repeat them in reverse order)
- **Fz/Pz and Cz/Oz**—Eyes partly open. Client **imagines a desired future change** in himself.
- **F7/F8 and T5/T6**—Client **reads silently for detail**.
- **Fp1/Fp2 and O1/O2**—**Pattern recognition**, counting the number of occurrences of the letter sequence "t, h and e", whether in a word (e.g. **the**ir, ano**the**r) or as a word itself.
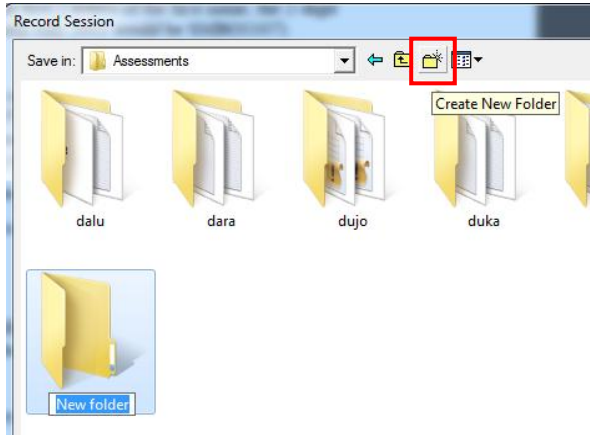
GATHER DATA

With *TQ7 Assess Pro Gather 4C* design open, click "Capture" (green triangle) and observe signal quality.
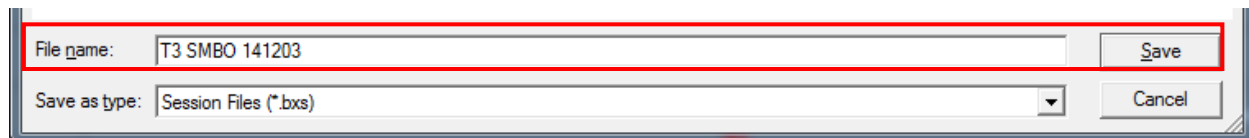
Check signal quality
- In the Power Spectrum windows (upper windows) look for spikes at 50 Hz or 60 Hz depending on your electrical system. If these are dominating the spectrum, there may be electromagnetic interference or you may have a poor connection between the skin and electrode
- In the Oscilloscope (lower right) very regular, mechanical and fast waves suggest artifact. Very large waves or rolling/wandering baseline for a channel also suggest problems. Channels should show about the same amount of activity. A very attenuated signal in one or more channels indicates a poor connection.
- If all channels show spikes and you are using a laptop, try unplugging the power transformer from the wall and the computer to run on battery. See if the spikes drop or disappear.
- If there are signal problems, click "Pause" (yellow parallel lines). Re-prep electrodes. Then click "Capture" again and verify that the signal has improved.

When signal is good, click the "Record" (red circle) button. In the "Record Session" window, navigate to Documents\BioExplorer\Sessions\Assessments and click the "Create New Folder" icon to the right of the "Save In" field.

Name the folder and open it. (e.g. SMBO-Client ID: first 2 letters of first and last name)

In the "File Name" field, type the name of the file with the channel 1 site (e.g. T3), client ID and date and

Save.

Be ready to have eyes closed when you click Save. As soon as you click Save, the first minute will start as the timer then starts back at 00:00 and start recording the first minute. If the session has paused, click "Capture" again and start again with eyes closed.

1. At 1 minute, a tone will sound and the display will pause. Instruct the client to open eyes and look straight ahead. Click "Capture" (green triangle) again to continue recording.
2. At 2 minutes, the tone will sound and the display will pause again. Remind the client of the task. Click "Capture" again and begin performing the task.
3. At 3 minutes the tone will sound and the display will pause again. Now you have completed this recording. Click "Stop" (white square) to save it.

In the Wiz settings window, select "Step 2" and repeat for each channel set. Record a minimum of the 6 basic site pairs; if possible, record the full 10 site-pairs.

- Click "Capture"
- Verify good signal and client sitting still
- Name file with site, client ID and date

Cap Sites	CH1	CH2	CH3	CH4	Task
Run 1	T3	T4	C3	C4	Listening
Run 2	F3	F4	P3	P4	Digit Span
Run 3	Fz	Pz	Cz	Oz	Imagine Desired Change
Optional	F7	F8	T5	T6	Silent Reading
Optional	Fp1	Fp2	O1	O2	Pattern Recognition

Trainer Tools

- There are three graphs: Eye artifact and Muscle Artifact (bottom left of Instruments 2) and Symmetry (Instruments 1).
- The artifact graphs should be fairly stable with the lines close together. The Symmetry graphs show the difference between one hemisphere and the other. The values generally will be above the zero line.
- If either of the artifact graphs shows a consistent problem, stop the recording and resolve the problem.
- If there are strong asymmetries, verify that these aren't due to poor connections, eye or muscle artifact.
- Recording the cleanest, most accurate possible data is the trainer's primary task here. Excessive or constant artifact in a file can't be fixed after the fact.

Special Notes

- When recording in F3/F4, Fz or F7/F8 sites, eyes-open and task segments should be done with the client's eyes "half-open"—peeking through the eyelashes—if this can be done without squinting. This will minimize eye blink artifact.
- Reading tasks should be held at eye-level (use a book stand) to minimize artifact.

Using the TQ7 Client Report

Professionals

The Client Report is considered when determining the final selections for the Whole-Brain Training Plan. This should be completed by the trainer through an interview with the trainee and additional members of the support system and saved in the client folder. A saved file is ready for import.

Open the Client Report

The trainer should create a profile/login at provider.brain-trainer.com and initiate a report, sending an invitation to the trainee's email. The trainee will then be associated with the provider's account. This can be changed later if needed in the client's report | Edit.

Complete the Report

Interview the client and family and complete the questionnaire, taking the opportunity to get an understanding of issues present, or the client can complete the report on his/her own.

Save File

Click the Save Client Report button to save the Client Report file. A name is automatically assigned to the file with "CRep" in the name. The file is available immediately for download. A copy will be sent to the trainer if a trainer has been specified.

Home Trainers

The Client Report is considered when determining the final selections for the Whole-Brain Training Plan. This should be completed and saved in the client folder. A saved file is ready for import.

Complete the Report

Complete the questionnaire, taking the opportunity to get an understanding of issues present. If you have purchased the Whole-Brain Training Plan, for "trainer", enter "Whole-Brain Training Plan."

Save File

If saving the file to your own computer, click the Save Client Report button to save the file. Save to the client folder (C:\Brain-Trainer for BioEra\session\[client folder]). A name is automatically assigned to the file with "CRep" in the name. The file is available immediately for download. A copy will be sent to the trainer *if a trainer has been specified*. If "Whole-Brain Training Plan" is selected, Brain-Trainer will receive a copy to use in creating your customized plan.

Appendix: Electro-Cap Sites

Front of Head

Back of Head